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ADA137643

Research Note 84-35

A STUDY TO VALIDATE A SAMPLE SET OF QUESTIONS
AND THE GENERAL APPROACH TO THEIR DEVELOPMENT
FOR AN ARMY SYSTEMS ACQUISITION REVIEW COUNCIL (ASARC) III SYSTEM

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January 1984

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84 02 09 017

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Research Note 84-35	2. GOVT ACCESSION NO. AD-A137643	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A Study to Validate A Sample Set of Questions and the General Approach to Their Development for an Army Systems Acquisition Review Council (ASARC) III System		5. TYPE OF REPORT & PERIOD COVERED Final October - November 1981
7. AUTHOR(s) Benjamin B. Skinner, Fred L. Friedman, and Ervin H. Muller		6. PERFORMING ORG. REPORT NUMBER MDA903-81-M-9061
9. PERFORMING ORGANIZATION NAME AND ADDRESS CACI, Inc. - Federal 1815 North Fort Myer Dr. Arlington, VA 22209		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2Q162717A790
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Research Institute for the Behavioral and Social Sciences 5001 Eisenhower Avenue, Alexandria, VA 22333		12. REPORT DATE January 1984
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES 68
		15. SECURITY CLASS. (of this report) Unclassified
		16a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES <i>Army Systems Acquisition Review Council</i>		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Manpower, Personnel and Training (MPT) Army System Acquisition Review Council (ASARC) Manpower Personnel Training Defense System Acquisition Review Council (DSARC) Weapon System Acquisition Process		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report describes an effort to validate a sample set of questions regarding Manpower, Personnel and Training issues to be asked during (ASARC) Reviews. The results of an application to a specific ASARC III system are provided.		

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Distribution/ _____	
Availability Codes	
Dist	Avail and/or Special
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EXECUTIVE SUMMARY

There has been increasing concern within the army regarding its ability to assess the Manpower, Personnel and Training (MPT) requirements and impact for new materiel acquisitions. Assignment of the Deputy Chief of Staff for Personnel (DCS PER) as a regular member of the Army Systems Acquisition Review Council (ASARC) has placed emphasis on this need. The Army Research Institute for the Behavioral and Social Sciences (ARI) has undertaken efforts to assist the Army in improving its ability to both determine MPT requirements for new systems and provide timely and accurate MPT information to ODCS PER for consideration for ASARC reviews.

A recent effort by ARI developed general types of MPT questions that must be addressed in preparation for the various milestone decision level reviews. It further provided a plan of organization to address these type questions.

The purpose of this research effort was to validate the sample set of questions and general approach developed in the previous ARI effort for an ASARC III System. The system selected was the Position Location Reporting System (PLRS). This report provides the findings of the effort.

The approach used for the effort was to establish the sample set of questions for ASARC III preparation and the general approach outlined in the earlier ARI study as a baseline. Questions were adjusted for PLRS application based on documents review and/or interviews with subject matter experts. The updated line of questions were confirmed by the subject matter experts. The approach and the questions were then used to obtain MPT information relative to PLRS which would be applicable to ASARC III review preparation.

The validation effort confirmed the question development process and validated the general approach. Specifically it was determined that:

- (a) The format proposed in the earlier ARI effort was effective.

- (b) Analysis of interview results and the MPT information obtained through answers to and use of the specific information confirmed the appropriateness of each question, their sources and users.
- (c) There is time sensitivity in generating MPT information in regards to the IOC, POM requirements and personnel distribution and training requirements as well as milestone reviews.
- (d) The general approach was effective in identifying issues for further consideration where appropriate.

During this effort it was determined that there is not a standardized means of collecting MPT information for milestone decision reviews. ODCSPER tasks the Soldier Support Center (SSC) to gather information and provide information to ODCSPER. However, there is no standard guideline as to what specifically is needed or where the information is derived. Key personnel stated a need for a standardized approach and methodology. After review of the validation effort and the associated results, the following conclusions and recommendations are provided:

CONCLUSIONS:

- o The general approach developed in the earlier ARI research effort is sound.
- o The line of questions are valid and were verified through application of specific questions for PLRS and discussions with the subject matter experts.
- o There is no standard methodology in approaching development of MPT information in preparation for either ASARC or IPR reviews.
- o Much of the data required to answer ASARC III questions for PLRS were incomplete pending receipt of the final BOIP/QQPRI at HQDA.

Under the provisions of AR 71-2, these documents should have been submitted to HQDA in March 1981 (one year prior to type classification in March 1982). Although the final BOIP/QQPRI is now scheduled for submission in November 1981, the failure to initiate and submit these documents at the required time has delayed MPT planning by the AHWG and the DA staff.

RECOMMENDATION:

- o A procedures manual and users guide should be developed which addresses information requirements for each level of review.
- o The procedures manual and users guide should provide a step-by-step guide for appropriate personnel from the DA level to the TRADOC and DARCOM (PMO) levels to develop the required/desired information.
- o Key information insertion points should be defined for the acquisition process and related, as appropriate, to key requirements such as decision reviews, IOC, POM cycle and personnel distribution and training needs and type classification date.

CHAPTER I

INTRODUCTION

A. BACKGROUND

There is an urgent need within the Army to improve its ability to assess the Manpower, Personnel and Training (MPT) requirements and impact for new materiel acquisitions. Failure to adequately address MPT issues in the past has often resulted in manning problems when the systems were fielded. Department of Defense (DOD) and Department of the Army (DA) actions have emphasized the need for both early and thorough MPT planning for systems under development. DOD Directive (DODD) 5000.1 and DOD Instruction (DODI) 5000.2 require specific information be made available for major systems at various decision points to facilitate decision making. The Deputy Chief of Staff for Personnel (DCS PER) has been assigned as a regular member of the Army Systems Acquisition Review Council (ASARC). Among other matters, he will consider MPT requirements for systems and the ability of the Army to support those requirements. He needs timely and accurate MPT information to support him in this role. An ad hoc working group (AHWG) is formed 10 to 12 months prior to an ASARC to review the status of the system undergoing review and to identify issues to be resolved. Although MPT is addressed by this group, no standard method or approach has been developed to assess MPT or to define the key questions which must be addressed to provide key and essential information.

A recent effort by the Army Research Institute for the Behavioral and Social Sciences (ARI) developed general types of MPT questions that must be addressed in preparation for the various milestone decision level reviews. It further provided a plan of organization to address these type questions. The ultimate objective was to develop the framework to provide an improved and systematic means of developing the information for the DCS PER and other managers regarding MPT.

CACI subsequently conducted a research/analysis effort to validate the resulting sample set of questions and general approach for an ASARC III system. The system selected by ARI was the Position Location Reporting System (PLRS).

R. PURPOSE

The purpose of this document is to provide a report of the findings and recommendations of the above research effort to attempt validation of the recent ARI work as pertains to ASARC III which defined:

1. The type of questions to be asked in preparation for an ASARC review of materiel systems.
2. The process recommended for generation of these review questions.

C. METHODOLOGY

The validation effort consisted of two major tasks. The initial task consisted of development of specific MPT questions for potential application to an ASARC III evaluation of the Army's PLRS. The approach conceptualized in the ARI product "A Study to Identify and Consolidate Manpower, Personnel and Training Requirements for Materiel Systems at ASARC Milestones" was used in the performance of this task. The following information areas were considered in addition to the question development itself:

1. Source of the question
2. User of the information
3. Method of obtaining the question
4. Desired level of quantification
5. Level of interest as regards validity of the response to questions.

The second major task consisted of the assessment of the validity of the specific ASARC review questions developed under the initial task, as well as the approach used to develop them. The second task was used to provide information as to the efficacy of developing standard questions for use in ASARC reviews. Further, the task was used to demonstrate the utility of the approach developed in the previously referenced ARI study. Consideration was given to:

1. Effectiveness of the format
2. Appropriateness of each question, their sources and users

3. Time sensitivity of specific ASARC III questions relative to the milestone review, Initial Operating Capability (IOC), PPBS requirements, personnel distribution and training
4. Overall effectiveness of the approach
5. Identified deficiencies and recommended improvements to the approach to generate standard questions for ASARC review preparation.

Information requirements included in the referenced ARI study and the sample MPT review plan plus questions for ASARC III contained therein were used as a point of departure in developing the ASARC III review preparation questions for the PLRS. Interviews regarding the approach and questions were conducted with key personnel from DCSPER, DCSOPS, DCSRDA, FMCO, SSC, and PMO to confirm the approach and develop the questions for PLRS. Appropriate regulations were reviewed once the questions had been developed and the approach confirmed. Answers to the questions were developed utilizing the information sources as determined in the approach development. Notations were made where information was not available through the information sources.

D. ORGANIZATION

This report is organized into 4 chapters, preceded by an Executive Summary. The Executive Summary provides highlights of the findings and recommendations of the research. Chapter I introduces the report and provides background as well as other introduction information. Chapter II discusses the MPT review plan and question development process for PLRS. Chapter III addresses the validation approach and question application. Chapter IV provides discussion and conclusions. Further an MPT analysis for PLRS developed from the results of the question application is included as Appendix B to this report.

CHAPTER II

MPT REVIEW PLAN AND QUESTION DEVELOPMENT

A. QUESTION BASELINE

The initial effort in this research and validation study was to develop specific MPT questions for potential application to an ASARC III evaluation of the Army's PLRS. The approach conceptualized in the ARI product "A Study to Identify and Consolidate Manpower, Personnel and Training Requirements for Materiel Systems at ASARC Milestones" was used as an initial baseline. Specifically, the sample set of questions for ASARC III review preparation contained therein was used as the question development framework. The objective was to prepare a series of questions which (subject to availability of information) would (1) assist in determining whether or not required numbers of properly trained personnel would be available to man the system when fielded and integrated into the Army structure, (2) provide MPT information which by regulation is required for ASARC/DSARC input (i.e., Decision Coordinating Paper (DCP) information), (3) identify manpower, personnel and/or training problems which may exist, (4) identify MPT issues which should be addressed at the ASARC. It was envisioned that answers to questions would normally reveal some deficiencies which could be resolved prior to the ASARC. Other deficiencies relative to affordability/supportability might exist which require addressing at ASARC/DSARC reviews. The approach is designed to surface information on a timely basis, allow issues to be resolved before ASARC when possible and surface issues which should be brought to the attention of DCSPER.

A favorable decision at Milestone III authorizes the system to enter production. The key issues at this point are personnel affordability for the long term and for the short term availability and scheduling of appropriate personnel to man the system when fielded.

Figures II-1 through II-4 provide the baseline ASARC III MPT review plan and questions as promulgated in the previous ARI effort. This approach and the associated questions were used as a starting point in solidifying the ASARC III preparation review questions relative to PLRS.

MPT REVIEW PLAN AND QUESTIONS

MILESTONE III KEY ISSUES

ISSUES: ABILITY TO MEET MPT FIELDING NEEDS OF SYSTEM
ABILITY TO MEET MPT LIFE CYCLE NEEDS OF SYSTEM
PERSONNEL SHORTFALLS
TRAINING SHORTFALLS
FUNDING SHORTFALLS
VERIFICATION OF MANPOWER ESTIMATES
OTHER ISSUES AS OCCURRING

MPT REVIEW PLAN AND QUESTIONS

MILESTONE III KEY ISSUES

FIGURE II-1

II-2

MPT REVIEW PLAN AND QUESTIONS

MILESTONE III PROGRAM DATA

PROGRAM _____
PROGRAM DESCRIPTION _____
IOC _____
ACQUISITION STATUS _____
AHWG ESTABLISHED _____
DAPR _____
PRE ASARC _____
ASARC III _____
DSARC III _____

* ASARC II MANNING - ESTIMATE:

OFFICER WARRANT OFFICER ENLISTED

* IF AVAILABLE

MPT REVIEW PLAN AND QUESTIONS

MILESTONE III PROGRAM DATA

**FIGURE II-2
II-3**

PRE-MILESTONE III
MPT INFORMATION AREAS/SOURCES

MPT INFORMATION DATA FEEDER SOURCE	MASTER REFERENCE FILE INFOR- MATION	WF/OT 11 TEST RESULTS	LOGISTIC SUPPORT PLANNING	TRAINING PLANNING UPDATE	LOGISTIC SUPPORT PLANNING SUMMARY	QQPRI	BOIP	DP	DRAFT TOE/ AURS	FY10P POH
A. Manpower										
o Previous Manning		x			x		x	x	x	x
o Current Manning					x		x	x	x	x
o Recommended Manning					x		x	x	x	x
o Total System Requirements (Operating & Support)					x		x	x	x	x
o MACON Requirements					x		x	x	x	x
o TRADOC Requirements					x		x	x	x	x
o Manpower Effects - One System					x		x	x	x	x
o Planning					x		x	x	x	x
o Programming					x		x	x	x	x
o Budget					x		x	x	x	x
o Affordable Budget Year					x		x	x	x	x
o Affordable POH Years					x		x	x	x	x
o Credibility					x		x	x	x	x
B. Personnel										
o Requirements							x			
o Duty/Task Analysis							x			
o Work Units							x			
o Performance Standards							x			
o Manpower Authorization Factors							x			
o MOS's							x			
o Skill Levels							x			
o Organization							x			

MPT INFORMATION AREAS/SOURCES
PRE-MILESTONE III
FIGURE II-3

PRE-MILESTONE 111

MPT INFORMATION AREAS/SOURCES

MPT INFORMATION DATA FIELDER SOURCE	MASTER REFERENCE FILE INFOR- MATION	DI/OT 11 TEST RESULTS	LOGISTIC SUPPORT PLANNING UPDATE	TRAINING MANUALS	LOGISTIC SUPPORT PLANNING SUMMARY	QQPRI	BOIP	DP	DRAFT	TOE/ AURS	FYDP POM
INFORMATION AREAS											
o Distribution plan consistent with fielding schedule.				x			x			x	
o Critical Skills				x			x			x	
o Test and Evaluation	x	x									
o Confirmation of Personnel (Suitable in operational environment)				x							
o UFE Implication				x			x			x	
o Recruiting				x			x			x	
o Personnel Affordability	x			x			x			x	
o Credibility				x			x			x	
C. Training											
o Requirements					x						
o Validation					x						
o Availability					x						
o Devices					x						
o Facilities					x						
o Instructors/Support					x						
o Scheduling					x						
o Training Supportability					x						
o Consistent with fielding.											
o Planned						x					
o Budgeted						x					

MPT INFORMATION AREAS/SOURCES
FIGURE II-3 (Continued)

ASARC/DSARC III

PREPARATION TYPE QUESTIONS/WORKSHEET

QUESTIONS	AMPLIFYING DATA	SOURCE	USER	TIME		REMARKS
				REQUIREMENT	BASELINE	
1. What was the previous manning estimate?		DSARC II DCP	DCSPER		ASARC	
2. What is the current manning estimate?		QQPRI	DCSPER		ASARC IOC TC	
3. Is the current manning within the established constraint/ threshold?		DSARC II DCP	DCSPER		ASARC	
4. Have DT/OT test and evaluation verified the manpower estimates?		DT/OT II TEST RE-SULTS	DCSPER		ASARC IOC	
5. Did DT/OT test prove system to be supportable from the MPT point of view?		DT/OT II TEST RE-SULTS	DCSPER		ASARC IOC	
6. a. Human engineering factors b. Training support packages c. Suitability in realistic environment		TQPRI	DCSPER		ASARC IOC PPBS	
6. What is the manpower requirements breakdown?						
a. Total b. Each MACOM c. TRADOC d. DARCOM						

PREPARATION TYPE QUESTIONS/WORKSHEET
ASARC/DSARC III
FIGURE II-4

PREPARATION TYPE QUESTIONS/WORKSHEET

QUESTIONS	AMPLIFYING DATA	SOURCE	USER	TIME		REMARKS
				REQUIREMENT	BASELINE	
7. What is the impact on MPT of one system?	QQPRI SSC	DCSPER	ASARC			
a. Operating and support billets						
b. Number and type personnel						
c. Training requirements						
d. Recruiting						
8. Have MPT trade off analyses been conducted and alternatives considered?	TP DP	DCSPER	ASARC			
9. Has a personnel affordability assessment been conducted?	SSC MILPERCENT	DCSPER	ASARC IOC			
10. If so, what personnel limitations were identified?	SSC MILPERCENT	DCSPER	ASARC IOC			
11. Can any personnel limitations identified be resolved - or is it an issue?	DCSPER SSC MILPERCENT	DCSPER	ASARC IOC PPBS			
12. Have training schedules been established?	SSC TP	DCSPER	ASARC IOC PPBS			
13. Have sufficient training seats been programmed and budgeted to meet the system needs - and in accordance with the fielding needs?	SSC TP	DCSPER	ASARC IOC PPBS			
14. Have recruiting and distribution plans been prepared relative to the system and system implementation? What problems, if any, are anticipated?	MILPERCENT DCS	DCSPER	ASARC IOC			

PREPARATION TYPE QUESTIONS/WORKSHEET

QUESTIONS	AMPLIFYING DATA	SOURCE	USER	TIME	REMARKS
				REQUIREMENT BASELINE	
15. Have retirement plans for the old system been prepared?	MILPERCENT DCSOPS DSCPERS MILPERCENT SSC	DCS PER	DCS PER		ASARC LOC TOC
16. If so, is it compatible with the introduction of the new system?	MILPERCENT SSC	DCS PER	DCS PER		
17. Has the final QQPRI been submitted?	QQPRI MILPERCENT	DCS PER	DCS PER		ASARC LOC TOC TC
18. Is it consistent with previous requirement estimates? If not, what are the current requirements?	QQPRI MRF	DCS PER	DCS PER		ASARC ASARC
19. Has MILPERCENT provided a MOS decision?	QQPRI MILPERCENT	DCS PER	DCS PER		ASARC LOC TOC TC
20. Have the MPT requirements been programmed?	FYDP / POM MRIS FMCO	DCS PER	DCS PER		ASARC LOC PPBS
21. Is the programmed manpower consistent with stated requirements?	QQPRI AURS TOE	DCS PER	DCS PER		ASARC SSC
22. Are the various documents which state requirements consistent?	QQPRI AURS TOE	DCS PER	DCS PER		ASARC

PREPARATION TYPE QUESTIONS/WORKSHEET

ASARC/DSARC III
FIGURE II-4 (Continued)

ASARC/DSARC III

PREPARATION TYPE QUESTIONS/WORKSHEET

QUESTIONS	AMPLIFYING DATA	SOURCE	USER	TIME REQUIREMENT	TIME BASELINE	REMARKS
-----------	-----------------	--------	------	------------------	---------------	---------

23. Does a summary analysis indicate that proper numbers of trained personnel will be available when the system is fielded? If not, what problems have been identified?

QQPRI
TRAINING PLAN

ASARC
LOC
DP
MRF

24. Does a summary analysis indicate that proper numbers of trained personnel will be available as the system is totally integrated into the array. If not, what problems have been identified?

QQPRI
TRAINING PLAN

ASARC
LOC
DP
MRF

PREPARATION TYPE QUESTIONS/WORKSHEET
ASARC/DSARC III

FIGURE II-4 (Continued)

B. UPDATED QUESTIONS FOR PLRS

Figure II-4 was used as the baseline for question development for PLRS. A documents review was conducted and interviews were held with key personnel responsible for developing and/or reviewing MPT information during System Acquisition. The purpose of the documents review and interviews was to identify with confidence the MPT questions which need to be addressed to provide a clear understanding of the MPT status regarding PLRS.

The ARI report "Manpower, Personnel and Training Requirements for Materiel Systems Acquisition" of February 1980 was reviewed regarding ASARC/DSARC III MPT information requirements. Appropriate DOD directives and instructions, as well as Army regulations, were reviewed to confirm information requirements. The documents review served as one basis in establishing the series of questions produced. Interviews with key personnel (Figure II-5) concentrated on information requirements, the question baseline and the approach. Where appropriate, questions were reordered and expanded. The question source, user of the information and the method of obtaining the question were documented. Further information regarding the desired level of quantification and level of interest as regards validity of the response to questions were noted. Figure II-6 provides the list of questions developed for ASARC III review preparation applicable to PLRS. It further portrays the question development process including the information areas noted above.

LIST OF INTERVIEWEES

<u>NAME</u>	<u>ORGANIZATION</u>
LTC WOLFKILL	DCSPER
MR. FEE	DCSPER
CPT WONG	SSC-NCR
LTC ZIEGLER	AFMCO
MAJ RIVIELLO	AFMCO
LTC HERN	DCSRDA
MAJ HODES	DCSOPS
MR. BRASWELL	DCSOPS
LTC VALLIANT	TRADOC
LTC DALTON	TRADOC
LTC SMITH	TRADOC
LTC BREWER	TRADOC
CPT BAXTER	TRADOC
DR. NAWROCKI	ARI (TRADOC)
LTC WALKLEY	MILPERCEN
LT MCNEILL	DARCOM PMO PLRS
MR. ROTE	SSC-NCR
CPT RICHARDSON	SSC-NCR

**LIST OF INTERVIEWEES
FIGURE II-5**

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

QUESTION	Source of the question	User of the information	Method of obtaining the question	Level of quantification desired	Level of interest regarding validity of response		
					H	M	L
d. Depot maintainers and material handlers. e. transportation f. ammunition g. Associated Support Items of Equipment (ASOE) (Test equipment, generators)					a,b,c,d e,f		
5. Have DT/OT test and evaluation verified the manpower estimates? a. operators b. organizational maintainers c. DSGS maintainers d. Depot maintainers and material handlers. e. transportation f. ammunition g. ASOE (test equipment, generators)	AR 71-3 DCS PER	DCS PER DCSOPS	Interviews and Directives Search		a,b,c,d e,f		
6. Did the DT/OT test prove the system to be operable from the MPT point of view? (could personnel operate the system?) a. human engineering b. training support c. Suitability in realistic environment	AR 71-3 DCS PER SSC	DCS PER DCSOPS DCSRDA	Interviews and Directives Search		a,b,c,d e,f		

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

Figure II-6 (Continued)
II-13

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

QUESTION	Source of the question	User of the information	Method of obtaining the question	Level of quantification desired	Level of interest regarding validity of response		
					H	M	L
7. Did the DT/OT test prove the system to be supportable from the MPT point of view (could personnel support the system in a realistic environment over extended periods).	AR 71-3 DCS PER SSC	DCS PER DCS OPS	Interviews and Directives Search	List problem areas	a,b,c,d e,f		
8. Have retirement plans for old system been prepared?	DCS PER SSC	DCS PER DCS OPS	Interviews and Directives Search	Affirmative/negative response	a,b,c,d e,f		
9. If so, is it compatible with the introduction of the new system?	DCS PER SSC	DCS PER DCS OPS	Interviews and Directives Search	Number of new and old systems by timeframe introduced and retired	a,b,c,d e,f		
10. Have units to be equipped with the new system been identified so manpower requirements can be programmed and documented?	DCS PER SSC	DCS PER DCS OPS	Interviews and Directives Search	Identify and location of units	a,b,c,d e,f		
10a. What is the manpower requirements breakdown? a. Total b. Gaining MACOM c. TRADOC d. DARCOM	DCS PER FMCO SSC	DCS PER DCS OPS AFMCO SSC TSW	Interviews and Directives Search	Numbers of officer, warrant officer, and enlisted by grade and skill by command.	a,b,c,d e,f		

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

Figure II-6 (Continued)

**QUESTION DEVELOPMENT PROCESS
AS/ARC III APPLICATION
(PLRS)**

QUESTION	Source of the question	User of the information	Method of obtaining the question	Level of quantification desired	Level of interest regarding validity of response		
					H	M	L
11. Have MPT trade off analysis been conducted and alternatives considered?	DCSPER SSC	DCSOPS DCSPER	Interviews and Directives Search	Affirmative/negative response - with amplification as appropriate	a,b,c,d e,f		
12. Has an affordability assessment been conducted? a. manpower b. personnel c. training	DCSPER SSC	DCSPER DCSOPS	Interviews and Directives Search	Affirmative/negative response - with amplification as appropriate	a,b,c,d e,f		
13. If so, what limitations were identified?	DCSPER SSC	DCSPER DCSOPS	Interviews and Directives Search	Numbers, skills, funds and/or other amplifying data.	a,b,c,d e,f		
14. Can limitations identified be resolved or is it an issue?	DCSPER	DCSPER DCSOPS	Interviews and Directives Search	As appropriate	a,b,c,d e,f		
15. What is the impact on MPT of one system? a. operating and support billets b. number and type personnel c. training requirements d. recruiting	DCSPER	DCSPER	Interviews and Directives Search	Numbers, skills, funds, training devices and other information as appropriate	a,b,c,d e,f		

**QUESTION DEVELOPMENT PROCESS
AS/ARC III APPLICATION
(PLRS)**

Figure II-6 (Continued)

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

QUESTION	Source of the question	User of the Information	Method of obtaining the question	Level of quantification desired	Level of interest regarding validity of response	
					H	M
16. Has the final RQIP/QO PRI been approved?	AR 71-2 AR 611-1 DCS PER	DCS PER DCS OPS	Interviews and Directives Search	Affirmative/negative response - amplifying information as appropriate	a,b,c,d e,f	
17. Has an MOS decision been announced?	AR 611-1 DCS PER SSC	DCS PER DCS OPS	Interviews and Directives Search	Affirmative/negative response - amplifying information as appropriate	a,b,c,d e,f	
18. Have MPT requirements been programmed? a. Manpower (MIRIS, PDIP, POM) b. Personnel (Requested) c. Training (ARPRINT, NETP)	DCS PER SSC AR 150-35	DCS PER DCS OPS TSM	Interviews and Directives Search	Affirmative/negative response - amplifying information as appropriate	a,b,c,d e,f	
19. Is programmed manpower consistent with stated requirements?	DCS PER SSC	DCS PER SSC	Interviews and Directives Search	Affirmative/negative response - amplifying information as appropriate	a,b,c,d e,f	
20. Are the various documents which state requirements consistent?	DCS PER SSC	DCS OPS	Interviews and Directives Search	Affirmative/negative response - amplifying information as appropriate	a,b,c,d e,f	
21. Have training schedules been established?	DCS PER SSC	DCS OPS DCS PER	Interviews and Directives Search	Affirmative/negative response - amplifying information as appropriate	a,b,c,d e,f	

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

Figure II-5 (Continued)

II-16

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

QUESTION	Source of the question	User of the information	Method of obtaining the question	Level of quantification desired	Level of interest regarding validity of response
22. Have sufficient training seats been programmed and budgeted to meet the system needs - and in accordance with the fielding needs?	DCSPER DCSOPS	DCSPER DCSOPS	Interviews and Directive Search	Affirmative/negative response amplifying information to include shortages if appropriate	a,b,c,d e,f
23. Have recruiting and distribution plans been prepared relative to the system and system implementation? What problems, if any, are anticipated?	DCSPER SSC	DCSPER TSM (Feedback)	Interviews and Directive Search	Affirmative/negative response. Amplifying information to include extent of problem areas	a,b,c,d e,f
24. Does a summary analysis indicate that proper numbers of trained personnel will be available when the system is fielded? If not, what problems have been identified?	DCSPER SSC	DCSOPS DCSPER	Interviews and Directive Search	Affirmative/negative response. Amplifying information to include extent of problem areas	a,b,c,d e,f
25. Does a summary analysis indicate that proper numbers of trained personnel will be available as the system is totally integrated into Army? If not, what problems have been identified?	DCSPER SSC	DCSOPS DCSPER	Interviews and Directive Search	Affirmative/negative response. Amplifying information to include extent of problem areas	a,b,c,d e,f

**QUESTION DEVELOPMENT PROCESS
ASARC III APPLICATION
(PLRS)**

Figure II-6 (Continued)

II-17

C. QUESTION DISCUSSION

As can be seen from Figure II-6, various sources were used to generate questions for the PLRS. Information obtained from interviews with key personnel proved extremely useful in developing and confirming this line of questions. Further, the interviews facilitated expansion of the user community for information obtained from question answer. Information from documents and from interviews added to the level of quantification desired. Determination of level of interest regarding validity of response was obtained through interviews. Interviewees were given the option of responding to this question in one of three categories (high, medium or low interest). Without exception, interviewees stated a high level of interest regarding validity of response to the questions for a system approaching ASARC III. The consensus was that information regarding MPT must be firm at this time or there would be problems on fielding or at a later time.

The next step in this effort revolved around validation of the general approach and questions.

CHAPTER III

VALIDATION APPROACH AND QUESTION APPLICATION

A. Validation Approach

The question development process for PLRS as described in the previous chapter utilized the baseline questions as a starting point. Documents were reviewed to confirm information requirements addressed in previous ARI products and a series of questions were developed for PLRS. Individual interviews were conducted with personnel who have various responsibilities regarding MPT matters associated with materiel acquisition and knowledge of the acquisition process (Figure II-5). Each question was discussed with the individual interviewee to assess the validity of the question. Amplifying information such as information sources, users, level of quantification desired and interviewee interest regarding the importance of the validity of response to the questions was also gathered during the interviews. The questions in Figure III-1 are those which the subject experts believed valid and previously shown under question development in the previous chapter. Question application and associated results plus previous interview information was used to validate the general approach and questions..

B. Question Application

The next step in the research and validation effort consisted of question application. The answer to each PLRS developed question was sought through review of available documentation concerning PLRS and interviews with representatives from the Department of the Army Staff, Training and Doctrine Command Headquarters (TRADOC), Soldier Support Center (SSC), Military Personnel Center (MILPERCEN), and DARCOM Program Management Office. Figure III-1 contains each question, the sources of information providing input to an answer where applicable, and remarks which essentially provide the results.

The documentation review was extensive and included a review of all the documents shown in Figure III-2. Additionally, it was necessary to check several sources for confirmation of information and to gather information regarding requirement changes which were being made at lower levels of Command and which had not yet been documented at the DA level.

C. Summary of Results

Upon completion of the question application phase of the validation effort, information was compiled and a manpower, personnel and training analysis relative to PLRS was prepared and is shown under Appendix B to this report. Essentially, application of these questions and the associated results reveal the following MPT assessment:

- o **Manpower:** The latest manpower estimate reflects an increased requirement for 130 enlisted spaces for the 10 Divisions (13 spaces for each division) programmed to receive PLRS. These estimates will be updated after receipt of the final basis of issue plan/qualitative and quantitative personnel requirements information (BOIP/QQPR)I at HQDA.

In view of the small number of manpower requirements spread over a five year fielding time frame (FY 84 through FY 88) there are no apparent manpower issues.

- o **Personnel:** The personnel requirements to support PLRS are not currently visible to the personnel community. Since the BOIP/QQPRI are not yet available, personnel requirements are not reflected in such documents as the Personnel Structure and Composition System (PERSACS) or the Army Program for Individual Training (ARPRINT). Based on information available, including projected Military Occupational Specialty (MOS) requirements and the relatively small number of personnel required over a five year period of time, there appear to be no significant personnel issues to surface at this time. These comments are based on review of needs for only PLRS and do not consider other system needs (i.e., aggregated requirements).
- o **Training:** Training plans to support the PLRS are not yet firm and questions may not be resolved until after completion of the Cost and Operational Effectiveness Analysis (COEA) scheduled for January 1982. Both the Individual-Collective Training Plan (ICTP) and the Operation and Organization (O&O) concept state that trained replacements are

desired to reach the field two months prior to Initial Operating Capability (IOC). Considering training time (60 weeks, see Appendix B) and equipment availability date, it appears that personnel with MOS 34F ((Digital Subscriber Terminal Equipment Repairer) ASI would not be available until approximately six months after the first unit is equipped. This is an issue that should be resolved prior to ASARC.

REMARKSINFORMATION SOURCEQUESTION

1. **What was the previous manning estimate?**

DA Guidance letter of 16 Apr 81
LOA, Apr 75
TBOIP, Feb 80
TQQPRI, Jan 80

PLRS was originally a Marine Corps system: The Army joined in development and acquisition in 1976 and met Milestone II by an In Process Review (IPR) during June 1976. Accordingly, normal documentation from Milestone 0 to Milestone II is non-existent. A Letter of Agreement (LOA) prepared in April 1975 contained no MPT constraints. The initial BOIP prepared in August 1976 reflected no personnel changes. The TBOIP (Feb 80) and TQQPRI (Jan 80) were reviewed by the Soldier Support Center (SSC) in September 1980. They reflected enlisted increased requirements of:

220 Operators - MOS 72E
44 DS Maintenance - MOS 34F

Total:
Officers Warrant Officers Enlisted
0 0 264

The MAP prepared by TRADOC reflects enlisted increases of:

100 operators - MOS 72E
20 DS Maintenance - MOS 34F
10 Truck/Generator Mechanic - MOS 63B

Total:
Officers Warrant Officers Enlisted
0 0 130

PLRS QUESTION APPLICATION AND RESULTS ASARC III PREPARATION

Figure III-1

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
3. Is the current manning within established constraints/thresholds?	LOA, APR 75	The LOA contained no constraints. Review of existing documentation show no evidence that constraints were established.
4. What are the requirements for personnel in the following categories?	MAP of 27 August 1981	
a. operators	a. 100 - MOS 72E	
b. organizational maintenance	b. 10 - MOS 63B	
c. DS/GS maintainers	c. 20 - MOS 34F	
d. Depot maintainers and material handlers	d. 0	
e. Transportation	e. 0	
f. Ammunition	f. 0	
g. Associated Support Items of Equipment (ASIOE) (test equipment, generators)	g. 0	
5. Have DT/OT test and evaluation verified the manpower estimates?	DA Guidance letter of 16 April 1981 Discussion with: TRADOC AFMCO DCSOPS	OT II commenced in October 1981 and will continue through December 1981. Test results are due at DA 1 February 1982. Interview reveals no manpower variances known at this time.
a. operators		
b. organizational maintainers		
c. DS/GS maintainers		
d. Depot maintainers and material handlers		
e. transportation		
f. ammunition		
g. ASIOE, test equipment generators		

**PLRS QUESTION APPLICATION AND RESULTS
ASARC III PREPARATION (Continued)**

Figure III-1

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
6. Did the DT/OT test prove the system to be operable from the MPT point of view? (could personnel operate the system?) a. Human engineering b. Training support c. Suitability in realistic environment.	DA Guidance Letter of 16 April 1981 Discussion with FMCO	OT II is still in progress. Test results are due at DA 1 February 1982. Informal information from Complexity Impact Study reveals that unit operator training is simple. Master station operator training is complex.
7. Did the DT/OT test prove the system to be supportable from the MPT point of view (could personnel support the system in a realistic environment over extended periods).	DA Guidance letter of 16 April 1981 Discussion with FMCO	OT II is still in progress. Test results are due at DA 1 February 1982. Informal information from Complexity Impact Study indicate that user unit repair tasks are relatively simple and master station repair tasks are extremely complicated.
8. Have retirement plans for old system been prepared?	MAP of 27 Aug 81	PLRS provides a new capability. It does not replace an old system.
9. If so, is it compatible with the introduction of the new system?	Not applicable	Not applicable
10. Have units to be equipped been identified so manpower requirements can be programmed and documented?	MAP of 27 August 1981 DCSOPS distribution guidance of December 1980	DCSOPS distribution guidance of 29 December 1980 reflects 10 Divisions by MACOM.

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
10a. What is the manpower requirements breakdown?	MAP of 27 August 1981	
a. Total b. Gaining MACOM c. TRADOC d. DARCOM		<p>a. 130 enlisted b. 130 enlisted c. 0 d. 0</p>
11. Have MPT trade off analysis been conducted and alternatives considered?	MAP of 27 August 1981 DA Guidance letter of 16 Apr 1981	<p>The MAP states that no trade off recommendations can be made. Personnel Analysis will be made after the BOIP/QQPRI is received. Training Analysis should be included in the COEA due in January 1982. There is no evidence from documents available that formal trade-offs have been made.</p>
12. Has an affordability assessment been conducted?	Discussion with: DCS PER AFMCO	<p>There is no documentation available to indicate that an affordability/supportability assessment has been conducted per se. However following information is pertinent.</p> <ul style="list-style-type: none"> a. Manpower - projected requirements have been entered in the POM for MACOMS. This indicates that billets are affordable. b. Personnel - MOS requirement review indicates that there is no significant problem regarding the ability to provide personnel in the projected MOS fields. (The MOS decision has yet to be announced)

QUESTION INFORMATION SOURCE

REMARKS

- c. Training - Although a formal affordability/supportability assessment has not been conducted, the training area remains in question regarding training requirements, personnel selection and IOC date.

Since no formal assessment has been conducted, no limitations were specified. However, comments under 12 above are pertinent.

Remarks same as 13 above.

One system for PLRS was addressed as the system for one Division.

- a. Total billets: 13 enlisted
 - b. 10 operators - MOS 72E
 - 2 DS Maintenance - MOS 34F
 - 1 Truck/Generator - MOS 63B
- c. Not Addressed
- d. Not Addressed

The BOIP/QQPRI has not yet been submitted to DA. It is due at DA during November 1981.

Discussions with:
 SSC
 DCSPER
 TRADOC
 DCSOPS

**9PLRS QUESTION APPLICATION AND RESULTS
 ASARC III PREPARATION (Continued)**

Figure III-1

REMARKS

QUESTION

INFORMATION SOURCE

17. Has an MOS decision been announced? See Above

18. Have MPT requirements been programmed?
a. Manpower (MRIS, PDIP, POM)
b. Personnel (Requested)
c. Training (ARPRINT, NETP)

Discussions with:
SSC
DCS PER
TRADOC

a. Discussions with SSC advise that 12 enlisted requirements per system were inserted in the MRIS by SSC in conjunction with DCSPER. The 63B requirement was not known at the time, therefore the MRIS should underestimate each system by 1 enlisted.

b. Personnel requisitions have not been made. This action should be accomplished after the MOS decision and TOE changes are effective.

c. Training requirements have not yet been entered in the ARPRINT. NETT requirements are included in the NETP and AMIM.

Programmed Manpower in Fy83-87 POM appears adequate. BOIP/QQPRI Submission in Nov 81 may require adjustment of programmed manpower in FY84-88 POM if requirements change.

Existing documents are inconsistent. The TBOIP reflects an increase of 264 enlisted while the MAP reflects an increase of 130 enlisted. Discussions reveal that the MAP is consistent with the draft final BOIP, however.

19. Is programmed manpower consistent with stated requirements?
TBOIP of February 1980
MAP of 27 Aug 81
Discussions with:
TRADOC
DCSOPS

20. Are the various documents which state requirements consistent?
TBOIP of February 1980
MAP of 27 August 1981
Discussions with:
TRADOC
DCSOPS

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
21. Have training schedules been established?	Discussions with: SSC DCSOPS TRADOC	Training plans to support the PLRS are <u>not</u> firm. The ICTP (Oct 79) and NETP (Aug 81) have been prepared. However, questions exist which suggest that training is an issue to be resolved. See Annex B (MPT Analysis) for details.
22. Have sufficient training seats been programmed and budgeted to meet the system needs - and in accordance with the fielding needs?	Discussions with: SSC DCSOPS TRADOC	Training Requirements have <u>not</u> been reflected in the ARPRINT. Training plans are not firm.
23. Have recruiting and distribution plans been prepared relative to the system and system implementation? What problems, if any, are anticipated?	Discussions with: SSC MILPERCEN	Recruiting and distribution plans cannot be made until BOIP/QQPRI are received, MOS decision is announced and training plans are firm.
24. Does a summary analysis indicate that proper numbers of trained personnel will be available when the system is fielded? If not, what problems have been identified?	MPT Analysis (Appendix B)	Training appears to be an issue. Training plans are not firm. Availability of personnel with MOS 34F ASI at IOC is questionable.

**PLRS QUESTION APPLICATION AND RESULTS
ASARC III PREPARATION (Continued)**

Figure III-1

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
25. Does a summary analysis indicate that proper numbers of trained personnel will be available as the system is totally integrated into Army? If not, what problems have been identified?	MPT Analysis (Appendix B)	The training issue listed in 24 above will impact only on initial fielding. There are no known issues that would impact on subsequent fielding.

**PLRS QUESTION APPLICATION AND RESULTS
ASARC III PREPARATION (Continued)**

Figure III-1

PLRS DOCUMENTATION REVIEWED

- a. Materiel System Requirement Specification (MSRS), 12 Jul 81
- b. Modernization Requirements Information System (MRIS), 9 Apr 81
- c. Program Decision Increment Package (PDIP), 12 Sep 81
- d. Manpower Analysis Paper (MAP) III, 27 Aug 81
- e. Guidance Letter, PLRS, Milestone III Review, ODCSRDA, 16 Apr 81
- f. Draft Updated Operational and Organization (O&O) Plan for PLRS, Sep 81
- g. PLRS Operational and Organizational (O&O) Concept, Hq TRADOC, 18 Oct 79
- h. PLRS Qualitative and Quantitative Personnel Requirements Information (QQPRI), 18 Jan 80
- i. PLRS Basis of Issue Plan (BOIP), 21 Feb 80
- j. Draft Amended QQPRI for PLRS, 15 May 81
- k. LOA for PLRS, 15 Apr 75
- l. Ltr, DALO-LEI, 10 Dec 80, Subj: Position Location Reporting System (PLRS)
- m. 1981 Army Modernization Information Memorandum (AMIM) data for PLRS
- n. NETP EL-2, PLRS, 14 Aug 81
- o. Distribution Guidance for PLRS, ODCSOPS, 29 Dec 80
- p. Individual - Collective Training Plan (ICTP) for PLRS, Oct 79

PLRS DOCUMENTATION REVIEWED

Figure III-2

CHAPTER IV

DISCUSSION AND CONCLUSIONS

A. VALIDATION DISCUSSION

The validation effort focused on two specific areas. One being the approach conceptualized in the ARI technical report "A Study to Identify and Consolidate Manpower, Personnel and Training Requirements for Materiel Systems at ASARC Milestones." The other being question development for potential application to an ASARC III evaluation of the PLRS. Documentation reviews confirmed the information requirements stated in the ARI product noted above. Interviews with key personnel at various staff levels confirmed the conceptual approach and the general line of questions established therein. The sample set of questions contained in the ARI product noted were reordered in accordance with recommendations of interviewees. Additional questions were added where appropriate.

Analysis of the interview results and the resulting information gained from the application of the questions shown in Chapter II, Figure II-6 proved the validity of the specific questions as well as the approach used to develop them. The following comments are pertinent:

1. Effectiveness of the format.

The format contained in the ARI product and completed and shown as Attachment I to Annex B was easy to work with and provided a logical flow in developing manpower, personnel and training information in sequence.

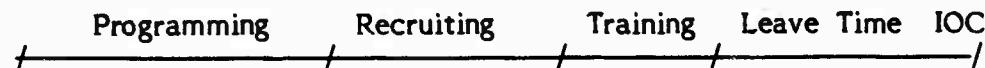
2. Appropriateness of each question, their sources and users.

Interviews with subject matter experts confirmed the appropriateness of the questions developed for application to the PLRS. Use of these questions and the resulting information validated both the line of

questions and the approach. Questions were generated from documentation requirements and/or interviews. Users of information was determined from previous efforts confirmed, and updated as appropriate based on discussions with interviewees.

3. Time sensitivity of specific ASARC III questions relative to the milestone review, IOC, Planning Programming Budgeting System (PPBS) requirements, personnel distribution and training.

The timeliness of MPT information in the acquisition process is critical to the fielding of a system. The MPT information requirements must be determined and documented at certain points along the acquisition time line. In order to determine the document insertion points, reverse or backward planning must be accomplished. The planning starts with IOC or fielding and progresses back through the time as depicted below.



- (a) Leave Time - This must be considered as a time between the end of training and the personnel joining the unit. This step is a personnel action and could be omitted if the acquisition is a new unit (Company, Battery, Troop, or Battalion or Squadron) and the leave time is considered as part of the training.
- (b) Training - Training time is dependent on the longest time to train an MOS. Training time in some cases could be considered in three parts - new equipment training (NET), individual training, and if the acquisition dictates, unit training or package training.

- (c) Recruiting - This category includes the lead time required to designate and acquire the personnel necessary to train, man and maintain the acquisition.
- (d) Programming - Programming the manpower requirements for the life cycle of the system is the key step in assuming the timely fielding of an acquisition with the required number of trained personnel. Even though the programming of manpower is in three general categories (officers, enlisted and civilian) it is critical that the manpower be as accurately determined by MACOM as possible. The programming of manpower can then be equated to trainers (TRADOC), project management and DT testing (DARCOM), and organizational units (FORSCOM, USAEUR, etc.). Programming is a continuous action culminating with the Program Objectives Memorandum (POM) update each May.

4. Overall effectiveness of the approach.

- (a) The previous lack of a standardized approach and a line of questions designed to develop required information was consistently noted by those personnel being interviewed. Without exception, these key individuals acknowledged the need for such a method.
- (b) Information derived through the approach showed that there appear to be no manpower issues or personnel issues subject to confirmation of the BOIP/QQPRI. There are training problems which must be resolved to insure adequate numbers of trained personnel when the system is fielded.
- (c) Application of this approach was easily accomplished. The questions were logical and where appropriate led to additional queries which were prompted from question responses. The approach provides a means to address the individual categories of

manpower, personnel and training. This provides the information categories necessary to assess budgeting of manpower, personnel and skill requirements versus availability, training requirements and planning, personnel distribution plans and recruiting impact.

5. Identified deficiencies.

- (a) The format developed in the earlier ARI effort displayed MPT information areas/sources. MPT information data feeder sources (Chapter II, Figure II-3) included master reference file information, logistics support planning manuals, training planning update, and logistic support planning summary. These designations were too general. It was noted that the information data feeder source description should be more specific. Documents such as the LOA, O&O Concept, NETP and ICTP should be listed.
- (b) There were various opinions regarding the meaning of "affordability." This term needs definition. Further, terms must be available which distinguish between the capability to program and budget billets and the ability to provide the required numbers of properly trained personnel when needed.
- (c) There is no means in use to consider other army needs when measuring the PLRS MPT impact.
- (d) There was no discussion regarding compensatory reduction for the 130 personnel increase.

B. CONCLUSIONS AND RECOMMENDATIONS

After review of the validation effort and the associated results, the following conclusions and recommendation are provided.

1. Conclusions

- a. The general approach developed in the earlier ARI research effort is sound.
- b. The line of questions are valid and were verified through application of specific questions for PLRS and discussions with the subject matter experts.
- c. There is no standard methodology in approaching development of MPT information in preparation for either ASARC or IPR reviews.
- d. Much of the data required to answer ASARC III questions for PLRS were incomplete pending receipt of the Final BOIP/QQPRI at HQDA. Under the provisions of AR 71-2, these documents should have been submitted to HQDA in March 1981 (one year prior to type classification in March 1982). Although the Final BOIP/QQPRI are now scheduled for submission in November 1981, the failure to initiate and submit these documents at the required time has delayed MPT planning by the AHWG and the DA staff.

2. Recommendation

- a. A procedures manual and users guide should be developed which addresses information requirements for each level of review.
- b. The procedures manual and user's guide should provide a step-by-step guide for appropriate personnel from the DA level to the TRADOC and DARCOM (PMO) levels, to develop the required/desired information.
- c. Key information insertion points should be defined for the acquisition process and related as appropriate to key requirements such as decision review, IOC, POM cycle, personnel distribution and training needs and type classification date.

APPENDIX A
SUMMARY of INTERVIEW RESULTS

Summary of Interview Results

During this research and analysis effort, interviews were conducted with key personnel in DCSPER, DCSOPS, DCSRDA, FMCO, SSC, MILPERCEN, TRADOC and DARCOM. A summary of the interview results follows:

Captain C. Wong, SSC:

- a. Reviewed MPT ASARC questions for ASARC preparation. Considered them appropriate and helpful.
- b. Earliest available PLRS Manpower estimates were those contained in the January 1980 BOIP.
- c. The Final BOIP/QQPRI for PLRS has not yet been received, but is scheduled for submission to DA in Nov 81. Consequently an MOS decision has not yet been announced.
- d. There is no record of an update to the October 1979 Individual Collective Training Plan (ICTP) for PLRS.
- e. Current planning is based on providing personnel to support the first unit equipped with PLRS in 4th qtr, FY84 as reflected in the NETP.
- f. The most recent manpower estimate for PLRS is contained in the Aug 81 Manpower Analysis Paper (MAP).
- g. Training plans for PLRS are not yet firm; however, availability of equipment for the training base may impact on having trained personnel to support the first unit.

ATTACHMENT (1) - INFORMATION CURRENTLY PROVIDED TO ODCSPER

- h. PLRS requirements have not yet been included in the ARPRINT, but should be after receipt of the BOIP/QQPRI.

Mr. Braswell, DCSOPS:

- a. Considered all MPT questions being proposed for ASARC III preparation were appropriate.
- b. Indicated level of interest in obtaining valid responses to all questions should be high when considering the ASARC III timeframe.
- c. stressed the importance of considering all components of a system in obtaining answers to the questions.
- e. The revised AR 71-2, which will consolidate both BOIP and QQPRI requirements into one regulation, is now in final staffing and projected for publication in the Jan/Feb 1982 timeframe.

LTC Hern, ODCSRDA PLRS DASC and Major Hodes, ODCSOPS PLRS FISO:

- a. Considered the proposed MPT questions as appropriate to be asked in preparation for an ASARC III, but pointed out that every question may not pertain to each system being consolidated. Level of interest regarding validity of response to these questions was considered high for ASARC III.
- b. A question should be added to ensure the training concept has been explained for unique personnel aspects, such as new MOS or skills.
- c. If training devices are required, it is important to have them available for start of training.
- d. Training plans for PLRS have not been firmed up; however, action is being taken to give priority to the training base for the receipt of equipment to start training.

- e. The status of tradeoff considerations regarding manpower requirements for PLRS was unknown.
- f. The units scheduled to receive PLRS have been identified and distribution plan published.

LTC Ziegler and Major Riviello, AFMCO:

- a. Agreed that proposed MPT questions were appropriate to be asked in preparation for ASARC III.
- b. There is no known process established for affordability assessment. Questions may be better understood if they addressed affordability/supportability, as the definition of affordability is unclear and not standardized.
- c. Requirements are contained in the MRIS in an unconstrained fashion while the POM is constrained. A look needs to be taken at the Delta between constrained and unconstrained requirements..
- d. There is currently no visibility of personnel for PLRS because the BOIP/QQPRI has not been approved. Therefore, they are not reflected in the PERSACS or ARPRINT.
- e. Recruiting must be considered during an affordability assessment.

HQ TRADOC, Fort Monroe, VA:

Lt. Colonel Valliant, Human Resources

Lt. Colonel Dalton, Human Resources

Lt. Colonel Smith, TRASSO representative

Capt. Baxter, Training

Dr. Nawrocki, ARI representative

- a. There does not appear to be a concensus within the Army on using the terms affordability and supportability. A definition needs to be provided.
- b. There could be numerous sources for determining previous manpower estimates, especially for non-major systems.
- c. Categories of personnel requirements should also address supply.
- d. The Development Test/Operational Test (DT/OT) results will not necessarily "prove" the systems operable or supportable from MPT point of view. Therefore, questions may need rewording.
- e. The question concerning retirement of the old system should read retirement/transition, as not all old systems are being retired.
- f. Transition of the old system should also consider impact on reserve components.
- g. Affordability assessment for personnel should consider such things as Space Imbalanced MOS (SIMOS) and security clearance requirements.
- h. Determining the impact on MPT of one system vice all systems may be difficult in areas of training and recruiting, unless responses are only qualitative not quantitative.
- i. The questions regarding training are good, but may be too specific for some systems at ASARC III timeframe. A more general question on the status of planning for training should be added.

Mr. Ken Fee, DCSPER:

Mr. Fee was the first person to be interviewed. He was interviewed after he had the opportunity to review the sample subset of questions. Mr. Fee provided the following comments:

- a. Questions were considered appropriate for ASARC III preparation. Additional questions may be required at other levels to provide all information needed.
- b. The SSC is DCSPER primary point of contact in developing information in preparation for ASARCS.
- c. MPT information is also needed for IPR (non-major) systems.
- d. A standardized approach to develop ASARC information is not currently available, and is needed.
- e. Mr. Fee provided a briefing format (see attachment 1), which is used as a guide in preparing information for ASARC MPT presentation to DCSPER.

Mr. Fred Rote, SSC:

Mr. Rote is head of the Materiel Division of SSC. As such he is responsible for knowing MPT status of materiel systems. Mr. Rote provided the following comments:

- a. The approach and questions contained in the ARI technical report are appropriate.
- b. It would be helpful to establish a standardized approach in developing MPT information in preparation for both ASARC and IPR reviews.
- c. Procedures and questions should include at least TRADOC System Manager (TSM) level and perhaps the Program Management Office level.

Captain Tim Richardson, SSC:

- a. The questions and approach are appropriate.

GENERAL OFFICER REPRESENTATIVE TO ASARC/P1B/P1R

- o BRIEF DESCRIPTION OF SYSTEM.
- o CURRENT STATUS WITHIN LCSMM.
- o REVIEW OF ISSUES PRESENTED AT PREVIOUS ASARC/BSARC.
- o DISCUSS MANPOWER REQUIREMENTS.
 - ORGANIZATION
 - DIRECT MANPOWER REQUIREMENTS -- BASE OPS, DARCOM, THEATER SUPPORT (FASTALS).
 - MANPOWER TRADEOFFS.
- o DISCUSS PERSONNEL REQUIREMENTS.
 - MOS (OPERATOR, MAINTAINER)
 - MOS TRADEOFFS (IF APPLICABLE).
 - SIMOS (IF APPLICABLE)
- o TRAINING
 - TYPE OF TRAINING (NETT, MOBILE TRAINING TEAM, AT TRAMOC SCHOOL)
 - WHEN IT BEGINS
 - HOW LONG
 - HOW OFTEN
 - CLASS CAPACITY
- o DEPLOYMENT AND DISTRIBUTION
 - BY UNIT
 - BY FY AND QUARTER

APPENDIX B

MPT ANALYSIS OF PLRS FOR ASARC III PREPARATION

This analysis of MPT for PLRS is based on the proposed MPT questions for ASARC III, review of available documentation concerning PLRS and interviews with representatives from the DA Staff, HQ TRADOC, SSC, MILPERCEN and the Project Management Office (PMO) for PLRS.

A. MANPOWER:

The latest available manpower estimates for PLRS were those contained in the TRADOC Manpower Analysis Paper (MAP) III dated 27 August 1981. The MAP reflects an increased requirement for 130 enlisted spaces. These include 10 operators, 1 organizational mechanic and 2 DS maintainers for each of the 10 Divisions slated to receive the PLRS.

These estimates will be updated after receipt of the Final BOIP/QQPRI for PLRS at DA. Submission of the Final BOIP/QQPRI is currently scheduled for November 1981.

Subsequent to BOIP/QQPRI approval by DA, these manpower requirements will be reflected in Tables of Organization and Equipment (TOE) changes furnished to Major Commands (MACOMs) for submission of MTOEs. Provided the BOIP/QQPRI are submitted as scheduled, sufficient time remains for this to occur prior to fielding of PLRS.

Attachment (1) - Milestone III Key Issues with Comments

Attachment (2) - Completed Milestone III Program Data Form

Attachment (3) - MPT Questions for PLRS ASARC III Preparation and Answers

Manpower requirements from PLRS were programmed in the FY 82-86 POM and revised in the FY 83-87 POM. If the Final BOIP/QQPRI or a revised distribution plan indicate changes, the manpower requirements should be adjusted in the FY 84-88 POM.

There is no indication that direct tradeoff considerations were applied.

In view of the above, considering the small number of manpower requirements (130 enlisted) spread over a five year fielding timeframe (FY84 thru FY88), there are no apparent manpower issues.

B. PERSONNEL:

The personnel requirements to support PLRS are not currently visible to the personnel community. Since the Final BOIP/QQPRI have not been received the MOS decision has not been announced. Therefore, personnel requirements are not reflected in such documents as PERSACS or the ARPRINT.

Based on previous QQPRI data available, coupled with information from the NETP, MAP and ICTP, the following changes to the classification structure and/or numbers of personnel required are anticipated:

- I. MOS 72E is recommended as the operator MOS for the PLRS Master Station. Because of the training required for this position, an Additional Skill Identifier (ASI) is being recommended. Based on a requirement of 10 operators for each of 10 Divisions, 100 additional MOS 72E personnel would be required. This is a high density MOS (7321 total authorized as of month end (ME) Jul 81). The addition of 100 requirements over a five year period (FY84 thru FY88) should not have a significant impact. While MOS 72E had only 80% operating strength as of month end (ME) Jul 81, MOS 72G was at 287% operating strength as of ME Jul 81 and should be available as substitutes for MOS 72E requirements in other than PLRS positions if required.

2. MOS 34F is recommended for direct support (DS) on-site maintenance of the PLRS Master Station. Because of the training required for this position, an ASI is being recommended. Based on a requirements of 2 maintainers for each of 10 Divisions, 20 additional MOS 34F would be required. MOS 34F, a relatively low density MOS (205 auth ME Jul 81) and has a good posture (109% operating strength as of ME Jul 81). The addition of 20 requirements over a five year period (FY84 thru FY88) should not in itself present a significant problem. A potential problem could develop inasmuch as this MOS is highly skilled and highly technical, currently requiring 42 weeks of training. The addition of an estimated 18 weeks for PLRS ASI training would result in individuals being in training for 60 weeks before first assignment. This could impact both on morale and retention. In addition, an individual receiving 18 weeks of PLRS training and then serving a tour as PLRS maintainer could well have difficulty retaining proficiency in the basic MOS 34F. It is expected these personnel will require special personnel management emphasis.
3. MOS 63B will provide organizational maintenance for the trucks and generators required for PLRS. Because of the additional workload, one additional MOS 63B will be required for each of 10 Divisions. Since this is a common high density MOS, the addition of 10 personnel, with no identification required, should not present any problem.

Since there is no new MOS, the fielding of PLRS should not impact on recruiting except for the additions in the above 3 MOS over a five year period.

Current distribution guidance for PLRS indicates fielding 50 percent in CONUS and 50 percent overseas, therefore, there should not be a serious SIMOS problem.

The current plan to announce the MOS decision for PLRS in December 1981 should allow sufficient time to recruit, train and assign the required personnel to support fielding in 4th Qtr. FY84.

The approval of the BOIP/QQPRI in December 1981 as planned, should allow sufficient time for MACOMs to document the requirements and requisition personnel to support fielding.

In view of the above, there are no significant personnel issues to surface at this time.

C. TRAINING:

Training plans to support the PLRS are not yet firm and questions may not be resolved until after completion of the COEA scheduled for January 1982.

Available information indicates that the majority of personnel to be trained on PLRS will have training incorporated into existing courses or receive On-the-job Training (OJT). The two exceptions being recommended for new courses of instructions are:

1. An ASI course for MOS 72E, as operator of the PLRS Master Station.
Duration of training is approximately 8 weeks.
2. An ASI course for MOS 34F, as maintainer for the PLRS Master Station.
Duration of training is approximately 18 weeks.

Both the ICTP of October 1979 and the revised O&O Concept of September 1981 state that trained replacements are desired to reach the field two months prior to IOC. However, based on existing information, this cannot be accomplished. The New Equipment Training Plan (NETP) indicates the first PLRS production will be available in the 4th Qtr. FY84 and institutional training courses scheduled to start in the 1st Qtr. FY85. Considering the 18 week training course for MOS 34F ASI, the result would be that trained replacements would not be available until approximately six months after the first unit is equipped. The cause of this problem is the lack of equipment prior to the 4th Qtr. FY84 for training.

The New Equipment Training Team (NETT) is scheduled to be deployed at the same time as the first unit is equipped and provide an eight week (320 hours) course of instruction to the DS maintainers, MOS 34F. However, it appears unlikely that the NETT could fully qualify a DS maintainer in 8 weeks when the proposed institutional training course will require 18 weeks. Possible solutions are to provide equipment to the training base at an earlier date or, obtain contractor support for training pending the start of institutional training. The MOS 34F training problem is an issue which needs a resolution prior to the ASARC to provide assurance that trained personnel can be available when the system is fielded.

D. ATTACHMENTS

Attachments 1 through 3 provide completed formats regarding key issues, milestone program data and question and answers for ASARC III MPT information preparation. This information was used as a basis for the above MPT Analysis.

MPT REVIEW PLAN AND QUESTIONS

MILESTONE III KEY ISSUES

ISSUE: Ability to meet MPT fielding needs of system

Comment: Delay in the MOS decision has impacted on the ability to provide a firm training plan. Considering the IOC date and the likelihood of MOS 34F ASI training, and the nonavailability of PLRS equipment for training before the 4th qtr. of FY84, MOS 34F ASI personnel will not be available without extraordinary measures

ISSUE: Ability to meet MPT Life Cycle Needs of System

Comment: Except for the training time problem noted above there appears to be no significant problem on meeting the life cycle needs of the system

ISSUE: Personnel Shortfalls

Comment: No significant problem

ISSUE: Training Shortfalls

Comment: See Comment under the first issue above.

ISSUE: Verification of Manpower Estimate

Comment: Estimates seem to be firm, however verification during OT has not occurred as yet.

**MPT REVIEW PLAN AND QUESTIONS
MILESTONE III KEY ISSUES
ATTACHMENT 1**

MPT REVIEW PLAN AND QUESTIONS

MILESTONE III PROGRAM DATA

PROGRAM	<u>Position Locating Reporting System (PLRS)</u>
PROGRAM DESCRIPTION	PLRS is a computer based command control system which provides, in near real time, position, location, identification, and navigation information for the forces it supports. PLRS consists of a Master Station (MS) and User Unit (UU). The MS will be assigned to the divisional signal battalion and control the network, perform all calculations, route messages and queries and display graphically all active UU. UU will be organic to units operating with the division area and can be configured either MANPACK, VEHICLE, GROUND or AIRBORNE to display position location, navigation information, identification and other data.
IOC	<u>4th Qtr, FY 84</u>
ACQUISITION STATUS	<u>Engineering Development</u>
AHWG ESTABLISHED	<u>11 February 1981</u>
IPR	<u>Jun 76</u>
PRE ASARC	<u>9 Mar 82</u>
ASARC III	<u>30 Mar 82</u>
DSARC III	<u>Not Required</u>

* ASARC II MANNING - ESTIMATE: The PLRS was not previously an ASARC system. Milestone II was met by an In-Process review in Jun 76 with no record of manning estimate at that time.

MPT REVIEW PLAN AND QUESTIONS
MILESTONE III PROGRAM DATA
ATTACHMENT 2

REMARKSINFORMATION SOURCEQUESTION

1. What was the previous manning estimate?

DA Guidance letter of 16 Apr 81
LOA, Apr 75
TBOIP, Feb 80
TQQPRI, Jan 80

PLRS was originally a Marine Corps system: The Army joined in development and acquisition in 1976 and met Milestone II by an In Process Review (IPR) during June 1976. Accordingly, normal documentation from Milestone 0 to Milestone II is non-existent. A Letter of Agreement (LOA) prepared in April 1975 contained no MPT constraints. The initial BOIP prepared in August 1976 reflected no personnel changes. The TBOIP (Feb 80) and TQQPRI (Jan 80) were reviewed by the Soldier Support Center (SSC) in September 1980. They reflected enlisted increased requirements of:

220 Operators - MOS 72E
44 DS Maintenance - MOS 34F

Total:	Officers	Warrant Officers	Enlisted
	0	0	264

The MAP prepared by TRADOC reflects enlisted increases of:

Total:	Officers	Warrant Officers	Enlisted
	0	0	130

Manpower Analysis Paper (MAP)
of 27 August 1981

2. What is the current manning estimate?

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PLRS QUESTION APPLICATION AND RESULTS
ASARC III PREPARATION

Attachment 3

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
3. Is the current Manning within established constraints/thresholds?	LOA, APR 75	The LOA contained no constraints. Review of existing documentation show no evidence that constraints were established.
4. What are the requirements for personnel in the following categories?	MAP of 27 August 1981	<ul style="list-style-type: none"> a. operators b. organizational maintenance c. DS/GS maintainers d. Depot maintainers and material handlers e. Transportation f. Ammunition g. Associated Support Items of Equipment (ASIOE) (test equipment, generators)
5. Have DT/OT test and evaluation verified the manpower estimates?	<p>B-9</p> <p>DA Guidance letter of 16 April 1981 Discussion with: TRADOC AFMCO DCSOPS</p> <ul style="list-style-type: none"> a. operators b. organizational maintainers c. DS/GS maintainers d. Depot maintainers and material handlers e. transportation f. ammunition g. ASIOE, test equipment generators 	<p>OT II commenced in October 1981 and will continue through December 1981. Test results are due at DA 1 February 1982. Interview reveals no manpower variances known at this time.</p>

**PLRS QUESTION APPLICATION AND RESULTS
ASARC III PREPARATION (Continued)**

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
6. Did the DT/OT test prove the system to be operable from the MPT point of view? (could personnel operate the system?) a. Human engineering b. Training support c. Suitability in realistic environment.	DA Guidance Letter of 16 April 1981 Discussion with FMCO	OT II is still in progress. Test results are due at DA 1 February 1982. Informal information from Complexity Impact Study reveals that unit operator training is simple. Master station operator training is complex.
7. Did the DT/OT test prove the system to be supportable from the MPT point of view (could personnel support the system in a realistic environment over extended periods).	DA Guidance letter of 16 April 1981 Discussion with FMCO	OT II is still in progress. Test results are due at DA 1 February 1982. Informal information from Complexity Impact Study indicate that user unit repair tasks are relatively simple and master station repair tasks are extremely complicated.
8. Have retirement plans for old system been prepared?	MAP of 27 Aug 81	PLRS provides a new capability. It does not replace an old system.
9. If so, is it compatible with the introduction of the new system?	Not applicable	Not applicable
10. Have units to be equipped been identified so manpower requirements can be programmed and documented?	MAP of 27 August 1981 DCSOPS distribution guidance of December 1980	DCSOPS distribution guidance of 29 December 1980 reflects 10 Divisions by MACOM.

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
10a. What is the manpower requirements breakdown?	MAP of 27 August 1981	
a. Total b. Gaining MACOM c. TRADOC d. DARCOM		a. 130 enlisted b. 130 enlisted c. 0 d. 0
11. Have MPT trade off analysis been conducted and alternatives considered?	MAP of 27 August 1981 DA Guidance letter of 16 Apr 1981	The MAP states that no trade off recommendations can be made. Personnel Analysis will be made after the BOIP/QQPRI is received. Training Analysis should be included in the COEA due in January 1982. There is no evidence from documents available that formal trade-offs have been made.
12. Has an affordability assessment been conducted?	Discussion with: DCS PER AFMCO	There is no documentation available to indicate that an affordability/supportability assessment has been conducted per se. However following information is pertinent. a. Manpower - projected requirements have been entered in the POM for MACOMS. This indicates that billets are affordable.
		b. Personnel - MOS requirement review indicates that there is no significant problem regarding the ability to provide personnel in the projected MOS fields. (The MOS decision has yet to be announced)

QUESTION

INFORMATION SOURCE

REMARKS

c. Training - Although a formal affordability/supportability assessment has not been conducted, the training area remains in question regarding training requirements, personnel selection and IOC date.

Since no formal assessment has been conducted, no limitations were specified. However, comments under 12 above are pertinent.

Remarks same as 13 above.

One system for PLRS was addressed as the system for one Division.

- a. Total billets: 13 enlisted
- b. 10 operators - MOS 72E
- 2 DS Maintenance - MOS 34F
- 1 Truck/Generator - MOS 63B
- c. Not Addressed
- d. Not Addressed

The BOIP/QQPRI has not yet been submitted to DA
It is due at DA during November 1981.

16. Has the final BOIP/QQPRI been approved?
Discussions with:
SSC
DCSPER
TRADOC
DCSOPS

**9PLRS QUESTION APPLICATION AND RESULTS
ASARC III PREPARATION (Continued)**

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
17. Has an MOS decision been announced?	See Above	No. The MOS decision will be announced after BOIP/QQPRI approval. Currently the decision is expected during December 1981.
18. Have MPT requirements been programmed?	Discussions with: SSC DCSPER TRADOC	<p>a. Discussions with SSC advise that 12 enlisted requirements per system were inserted in the MRIS by SSC in conjunction with DCSPER. The 63B requirement was not known at the time, therefore the MRIS should underestimate each system by 1 enlisted.</p> <p>b. Personnel requisitions have not been made.</p> <p>c. Training requirements have not yet been entered in the ARPRINT. NETT requirements are included in the NETP and AMIM.</p>
19. Is programmed manpower consistent with stated requirements?	FY83-87 POM MAP of 27 Aug 81	Programmed Manpower in Fy83-87 POM appears adequate. BOIP/QQPRI Submission in Nov 81 may require adjustment of Programmed manpower in FY84-88 POM if requirements change.
20. Are the various documents which state requirements consistent?	TBOIP of February 1980 MAP of 27 August 1981 Discussions with: TRADOC DCSOPS	Existing documents are inconsistent. The TBOIP reflects an increase of 264 enlisted while the MAP reflects an increase of 130 enlisted. Discussions reveal that the MAP is consistent with the draft final BOIP, however.

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
21. Have training schedules been established?	Discussions with: SSC DCSOPS TRADOC	Training plans to support the PLRS are <u>not</u> firm. The ICFP (Oct 79) and NETP (Aug 81) have been prepared. However, questions exist which suggest that training is an issue to be resolved. See Annex I (MPT Analysis) for details.
22. Have sufficient training seats been programmed and budgeted to meet the system needs - and in accordance with the fielding needs?	Discussions with: SSC DCSOPS TRADOC	Training Requirements have not been reflected in the ARPRINT. Training plans are not firm.
23. Have recruiting and distribution plans been prepared relative to the system and system implementation? What problems, if any, are anticipated?	Discussions with: SSC MILPERCEN	Recruiting and distribution plans cannot be made until BOIP/QQPRI are received, MOS decision is announced and training plans are firm.
24. Does a summary analysis indicate that proper numbers of trained personnel will be available when the system is fielded? If not, what problems have been identified?	MPT Analysis (Appendix B)	Training appears to be an issue. Training plans are not firm. Availability of personnel with MOS 34F ASI at IOC is questionable.

<u>QUESTION</u>	<u>INFORMATION SOURCE</u>	<u>REMARKS</u>
25. Does a summary analysis indicate that proper numbers of trained personnel will be available as the system is to totally integrated into Army? If not, what problems have been identified?	MPT Analysis (Appendix B)	The training issue listed in 24 above will impact on initial fielding. There are no known issues that would impact on subsequent fielding.

APPENDIX C

GLOSSARY OF ACRONYMS

AHWG	Ad Hoc Working Group
AMIM	Army Modernization Information Memorandum
AR	Army Regulation
ARI	Army Research Institute
ARPRINT	Army Program for Individual Training
ASARC	Army Systems Acquisition Review Council
ASI	Additional Skill Identifier
BCE	Baseline Cost Estimate
BOIP	Basis of Issue Plan
COEA	Cost and Operation Effectiveness Analysis
DA	Department of the Army
DA Pam	Department of the Army pamphlet
DAPR	Department of the Army Preliminary Review
DARCOM	Development Acquisition and Readiness Command
DCP	Decision Coordinating Paper
DCS	Deputy Chief of Staff
DCSOPS	Deputy Chief of Staff for Operations and Plans
DCSPER	Deputy Chief of Staff for Personnel
DCSRDA	Deputy Chief of Staff for Research, Development, and Acquisition
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DP	Development Plan
DS	Direct Support
DSARC	Defense Systems Acquisition Review Council
DT	Development Test
FLG	Force Level Guidance
FM	Field Manual
FMCO	Force Modernization Coordination Office
FUE	First Unit Equipped

FYDP	Five Year Defense Plan
HQDA	Headquarters of Department of the Army
ICTP	Individual-Collective Training Plan
IOC	Initial Operating Capability
IPR	In-Process Review
IPS	Integrated Program Summary
LCSMM	Life Cycle System Management Model
LOA	Letter of Agreement
LSPD	Logistics Support Planning Document
MAP	Manpower Analysis Paper
MACOM	Major Command
ME	Month End
MENS	Mission Element Need Statement
MILPERS	Military Personnel
MILPERCEN	Military Personnel Center
MOS	Military Occupational Specialty
MPT	Manpower, Personnel, and Training
MRF	Milestone Reference File
MRIS	Modernization Requirements Information System
MSRS	Materiel System Requirement Specification
MTOE	Modified Table of Organization and Equipment
NETP	New Equipment Training Plan
NETT	New Equipment Training Team
ODP	Outline Development Plan
O&M	Operating and Maintenance
O&O	Operational and Organizational
OJT	On the Job Training
OT	Operational Test
PDIP	Program Decision Incrementing Package
PERSACS	Personnel Structure and Composition System
PLRS	Position Locating Reporting System
POM	Program Objectives Memorandum
PMO	Project Management Office
PPBS	Planning, Programming, and Budgeting System

QQPRI	Qualitative and Quantitative Personnel Requirements Information
RDA	Research, Development, and Acquisiton
SDDM	Secretary of Defense Decision Memorandum
SECDEF	Secretary of Defense
SIMOS	Space Inbalanced Military Occupational Specialty
SSC	Soldier Support Center
TDA	Table(s)of Distribution and Allowances
TDR	Training Device Requirements
TOA	Trade-Off Analysis
TOD	Trade-Off Determination
TOE	Table(s) of Organization and Equipment
TRADOC	Training and Doctrine Command
TSM	Training and Doctrine Command System Manager